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New Species and Records of Polychaetous Annelids from the *Tetraclita* (Cirripedia: Crustacea) Zone of the Northern Gulf of California, Mexico

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Abstract.—Two new species of polychaetes belonging to the families Phyllodocidae and Nereidae are described from the *Tetraclita* zone of Bahía Cholla, Puerto Peñasco, Sonora, Mexico. The ranges of *Syllis elongata* (Johnson, 1901), *Typosyllis fasciata* (Malmgren, 1867) and *Perinereis monterea* (Chamberlin, 1918) are extended into the Gulf of California.

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Over 500 species of polychaetes are currently known from the Gulf of California (Reish, 1968; Fauchald, 1972; Kudenov, 1975a, b, c and in press). A small collection of polychaetes was kindly made available by Prof. J. R. Hendrickson, University of Arizona. These were collected during 10–24 October 1976 by his student, Mr. R. Dougherty, from under the tests of *Tetraclita squamosa* (Bruguiere) at Bahía Cholla, Puerto Peñasco, Sonora, Mexico. This collection site is hereafter referred to as the "study area." *T. squamosa* occurs in the high intertidal zone and is rather common in the Gulf of California (Brusca, 1973). The ecological succession and distribution of invertebrate species in vacant tests of *T. staliactifera panamensis* was investigated in Panama by Reimer (1976a, b). The entire collection and types are lodged at the Allan Hancock Foundation, University of Southern California.

Family Phyllodocidae

Eumida uschakovi, n. sp.

Fig. 1

Material examined.—Study area, Holotype, AHF POLY 1217.

Description.—Holotype complete, with 256 setigers, measuring 25 mm long, 1 mm wide with parapodia, 0.6 mm wide without. Body elliptical in cross section, lacking midventral groove; uniformly pale rose in color in alcohol with traces of dark dorsolateral pigmentation.

Prostomium elliptical, longer than wide, with 5 conspicuous antennae (Fig. 1a). Anterior dorsal pair of antennae conical, longer than wide; ventral pair cirriform, about 2 times longer than dorsal pair; median antenna inserted on anterior prostomium, well ahead of eyes. One pair of dark, circular, lenticulate eyes present middorsally; nuchal papilla absent. Proboscis not everted, not examined.

First segment reduced, not visible dorsally. Tentacular formula of $1 + S^1_1 + S^1_N$ with tentacular cirri cirriform; with dorsal cirri of segments 2 and 3 longest, and ventral cirrus of segment 2 shortest; ceratophores of each tentacular cirrus with 3–4 annuli.

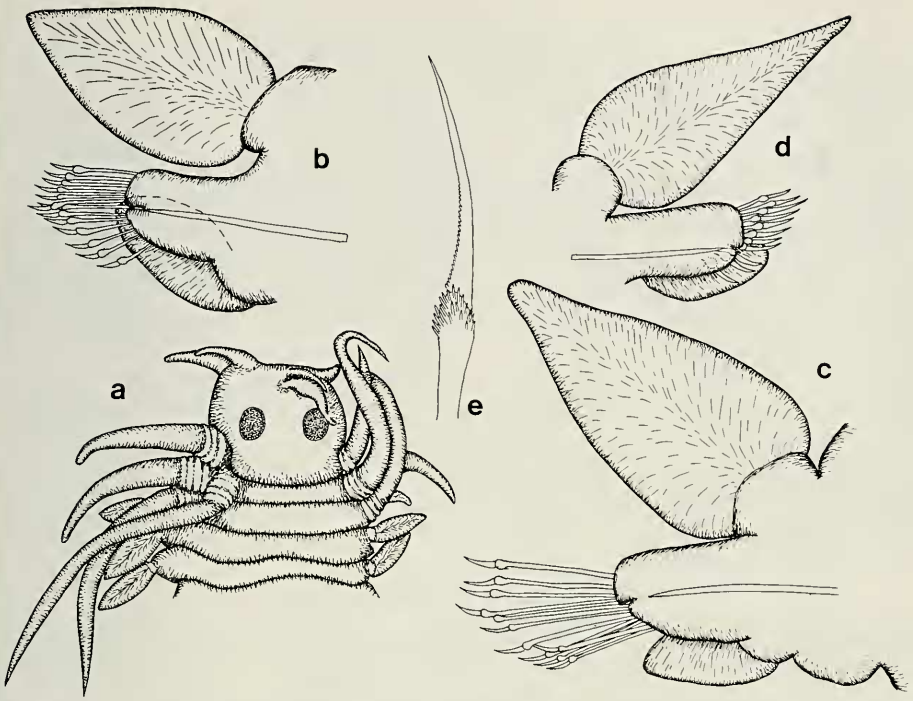

Fig. 1. a–e. Holotype, AHF POLY 1217, *Eumida uschakovi*. a. anterior setigers, dorsal view, ×27; b. right parapodium, setiger 10, anterior view, ×70; c. same, setiger 75, anterior view, ×70; d. left parapodium, setiger 125, ×70; e. composite spiniger, ×340.

Dorsal cirri 2–3 times longer than wide; broadly lance-shaped, distally blunt in anterior, medial setigers; becoming narrow, distally pointed in posterior setigers (Fig. 1b–d). Dorsal cirri of anterior, posterior setigers oval in cross section; those of medial setigers flattened. Ventral cirri distally rounded, projecting beyond parapodial lobes only of anterior, posterior setigers. Parapodial lobes distally notched, with aciculum penetrating notch in anterior setigers (Fig. 1b–d).

All setae as composite spinigers with spinous distal shafts and short appendages (Fig. 1e). Appendages obliquely sculptured, with a row of denticles on cutting edge becoming indistinct distally; number of setae gradually decreasing from 16 in setiger 10; 13 in setiger 75; 10–11 in setiger 125.

Pygidium with 1 pair of stout, distally blunt anal cirri equalling length of last 5–6 prepygidial setigers.

Discussion.—*Eumida uschakovi* is similar to *E. fusigera* (Malmgren) *sensu* Uschakov (1972), *E. parva* St. Joseph and *E. granulosa* (Verrill) in having dorsal cirri at least 2 times longer than wide. *E. uschakovi* differs from these species in having inflated, instead of flattened dorsal cirri; in having the median antenna inserted on the anterior prostomium, instead of between the eyes; and in lacking both prolonged superior parapodial processes and pointed ventral cirri. This species is named in honor of Prof. P. V. Uschakov in recognition of his monographic study of phyllodociform polychaetes.

Family Syllidae

Syllis elongata (Johnson, 1901)

Pionosyllis elongata Johnson, 1901:403–404, pl. 6, figs. 67–70.
Syllis elongata. Hartman, 1968:461–462, figs. 1–3; Banse and Hobson, 1974:61.

Material examined.—Study area, 2 specimens, AHF 000366-0.

Description.—These specimens generally agree with the original description, but differ in the segmental distribution of the pharnyx and proventriculus, and in the number of articles per dorsal cirrus. The pharynx extends through setigers 13–14, while the proventriculus is present in setigers 14/15–22. The long and short dorsal cirri of setigers 10 and 11 have 45 and 26 articles, respectively; those of setigers 190 and 191 with 15 and 12.

Discussion.—*S. elongata* normally has the pharynx and proventriculus through setigers 11, and setigers 11–19/20, and dorsal cirri with 16–20 articles anteriorly, and 14–15 posteriorly. The mexican specimens differ, and may represent a new subspecies, which I hesitate doing until additional materials are available.

Distribution.—Western Canada to southern California; newly reported from the Gulf of California, Mexico.

Typosyllis fasciata (Malmgren, 1867)

Typosyllis fasciata. Berkeley and Berkeley, 1948:74–75, fig. 109; Hartman, 1968:485–486, figs. 1–3; Banse and Hobson, 1968:64.

Material examined.—Study area, 2 specimens, AHF 000366-02.

Discussion.—These specimens agree well with previous descriptions.

Distribution.—Western Europe; western Canada to southern California; newly reported from the Gulf of California, Mexico.

Family Nereidae

Perinereis monterea (Chamberlin, 1918)

Perinereis monterea. Hartman, 1968:557–558; Banse and Hobson, 1974:71.

Material examined.—Study area, 2 specimens, AHF 000366-03.

Discussion.—These specimens agree well with previous descriptions.

Distribution.—British Columbia to western Mexico; newly reported from the Gulf of California, Mexico.

Neanthes cortezi, n. sp.

Fig. 2

Material examined.—Study area, Holotype, AHF POLY 1218; 20+ Paratypes, AHF POLY 1219.

Description.—A small species up to 25 mm long, 1.5 mm wide with parapodia, 1 mm wide without, for 80 setigers. Body elliptical in cross section, midventrally grooved; prostomium, palps, palpistyles, antennae with brown pigment.

Prostomium longer than wide, distally rounded, with conical frontal antennae (Fig. 2a). Palpi very large, about as long as prostomium; palpistyles nearly spherical. Two pairs of eyes present with anterior pair farthest apart, crescent-shaped; posterior pair elliptical.

Proboscis with dark brown, conical paragnaths on both rings as follows: I,

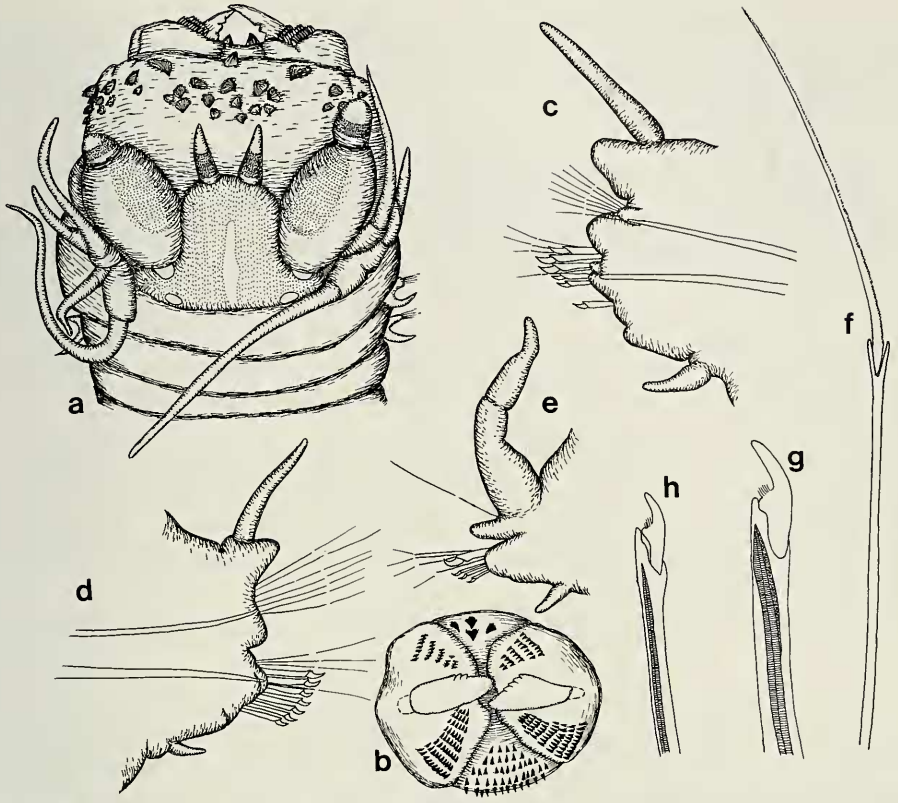

Fig. 2. a–h. Holotype, AHF POLY 1218, *Neanthes cortezi*. a. anterior segments, dorsal view, ×27; b. maxillary ring, pharynx, frontal view, ×27; c. right parapodium, setiger 10, anterior view, ×70; d. left parapodium, setiger 40, anterior view, ×70; e. right parapodium, setiger 70, anterior view, ×70; f. homogomph spiniger, ×250; g–h. superior and inferior heterogomph falcigers, ×340.

diamond patch of 4 cones; II triangular patch of 25 cones in 5 rows; III, oval patch of 45 cones in 5 rows; IV, trapezoidal patch of 56 cones in 8 rows; V, diamond patch of 14 cones; VI, single high conical paranath; VII–VIII, 91 large, small cones in 3 continuous rows (Fig. 2a, b). Jaws dark brown in color each with 11 triangular teeth.

Peristomium ⅓ as long as prostomium, with 4 pairs of cirriform tentacular cirri; anterior and posterior ventral pairs extending to setiger 1; anterior dorsal pair extending to setiger 3; posterior dorsal pair extending to setigers 7–8.

Anterior biramous parapodia with trilobed noto- and neuropodia (Fig. 2c); rounded pre- and postsetal lobes, a small round intermediate lobe plus a rectangular inferior lobe. Ventral cirri clavate in all setigers, decreasing in length posteriorly (Fig. 2c–e). Dorsal cirri finger-like, inserted on superior notopodial lobe.

Posterior parapodia with bilobed noto- and neuropodia. Dorsal cirri becoming reduced; situated distally on elongated superior notopodial lobes (Fig. 2e).

Notosetae all composite homogomph spinigers with denticulate appendages

(Fig. 2f). Neuropodia include composite homogomph spinigers in superior positions; composite heterogomph spinigers in intermediate positions; and thick and thin shafted heterogomph falcigers in intermediate and inferior positions. Superior heterogomph falcigers with shafts 2 times wider than inferior ones (Fig. 2g, h), each with 5–6 hairs on cutting margin of a short falcate appendage.

Discussion.—*Neanthes cortezi* belongs to group IIB2c (Fauchald, 1972) to which the following species are assigned: *N. noodti* Hartmann-Schröder, *N. seridentata* Hartmann-Schröder, *N. ruficeps* (Ehlers) and *N. pseudonoodti* Fauchald. Fauchald (1977) compared the latter 4 species. *N. cortezi* is most closely related to *N. noodti* and *N. pseudonoodti* in having paragnaths present in all pharyngeal regions. *N. cortezi* differs in having a patch of 14 cones in area V while the other 2 species each have a single cone. *N. cortezi* and *N. noodti* each have a single cone on area VI, but the paragnaths differ greatly in size; *N. pseudonoodti* has 2 cones on area VI.

N. cortezi, N. noodti and *N. pseudonoodti* are also related ecologically and zoogeographically in that all are associated with barnacles in rocky intertidal habitats in the eastern Pacific. It is probable that *N. cortezi* evolved from a widespread ancestor of both *N. noodti* and *N. pseudonoodti* through isolation in the Gulf of California.

Distribution.—Bahía Cholla, Puerto Peñasco, northern Gulf of California.

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Literature Cited

Banse, K., and K. Hobson. 1974. Benthic errantiate polychaetes of British Columbia and Washington. Bull. Fish. Res. Bd. Canada, 185:1–111.

Brusca, R. C. (ed.). 1973. A Handbook to the Common Intertidal Invertebrates of the Gulf of California. University of Arizona Press, Tucson, 427 pp.

Berkeley, E., and C. Berkeley. 1948. Annelida. Polychaeta Errantia. Can. Pac. Fauna, 9b(1):1–100.

Chamberlin, R. V. 1918. Polychaetes from Montery Bay. Proc. Biol. Soc. Wash., 31:173–180.

Fauchald, K. 1972. Benthic polychaetous annelids from deep water off western Mexico and adjacent areas in the eastern Pacific Ocean. Allan Hancock Monogr. Mar. Biol., 7:1–575.

———. 1977. Polychaetes from intertidal areas in Panama, with a review of previous shallow-water records. Smith. Contrib. Zool., 221:1–81.

Hartman, O. 1968. Atlas of Errantiate Polychaetous Annelids from California. Allan Hancock Found., Univ. of So. Calif., Los Angeles, 828 pp.

Johnson, H. P. 1901. The Polychaeta of the Puget Sound region. Proc. Boston Soc. Nat. Hist., 29:381–437.

Kudenov, J. D. 1975a. Errant polychaetes from the Gulf of California, Mexico. J. Nat. Hist., 9:65–91.

———. 1975b. Sedentary polychaetes from the Gulf of California, Mexico. J. Nat. Hist., 9:205–231.

———. 1975c. Two new species of errant polychaetes from the Gulf of California, Mexico. Bull. S. Calif. Acad. Sci., 74(2):75–80.

———. Annelida Polychaeta (Bristleworms). *In* A Handbook to the Common Intertidal Invertebrates of the Gulf of California. (R. C. Brusca, ed., 2nd edition), Univ. Arizona Press. In press.

Malmgren, A. J. 1867. Annulata Polychaeta Spetsbergiae, Grönlandiae, Islandiae et Scandinaviae hactanus cognita. Öfvers. K. Vetensk. Akad. Förh., 24:127–235.

Reimer, A. A. 1976a. Description of the *Tetraclita stalactifera panamensis* community on a rocky intertidal Pacific shore in Panama. Mar. Biol., 35:225–238.

———. 1976b. Succession of invertebrates in vacant tests of *Tetraclita stalactifera panamensis*. Mar. Biol., 35:239–251.

Reish, D. J. 1968. A biological survey of Bahia de los Angeles, Gulf of California, Mexico. II. Benthic polychaetous annelids. Trans. San Diego Soc. Nat. Hist., 15:67–106.

Uschakov, P. V. 1972. (Polychaetes. Vol. 1. Polychaetes of the suborder Phyllodociformia of the Polar Basin and the northwestern Part of the Pacific. Families Phyllodocidae, Alciopidae, Tomopteridae, Typhloscolecidae, and Lacydoniidae.) (Translated from the Russian by the Israel Program for Scientific Translations, 1974). Fauna SSSR, 102:1–272.

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